

**DEVELOPING A  
STANDARDS-OF-SERVICE  
FRAMEWORK**

**ISSUES PAPER**

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## Definitions

“CAIDI”	means Customer Average Interruption Duration Index
“Contestable Customer”	means a customer classified by the Electricity Reform (Administration) Regulations as a contestable customer; contestable customers can choose their retail supplier; from 1 April 2002 customers whose annual consumption of electricity is greater than 750MWh are classified as contestable customers
“GSL”	means Guaranteed Service Level
“MAIFI”	means Momentary Average Interruption Frequency Index
“Network Access Code”	means the <i>Electricity Networks (Third Party Access) Code</i>
“Network Service Provider”	means the person who provides or is in a position to provide the network access services in respect of a particular electricity network
“Network User”	means a person, whether a load user or a generator user, who has been granted access to the electricity network by the Network Service Provider in order to transport electrical energy to or from a particular point
“Non-Contestable Customer”	means any customer other than a contestable customer
“Power and Water”	means the Power and Water Corporation
“Regulatory Control Period”	means the period between major price reviews during which time the methodology used in setting prices is held constant; the first regulatory control period was the period between commencement of the Network Access Code and 30 June 2004 and the second regulatory control period is the period between 1 July 2004 and 30 June 2009
“SAIDI”	means System Average Interruption Duration Index
“SAIFI”	means System Average Interruption Frequency Index
“Standards of Service”	means the standards of reliability, quality and customer service applying to the provision of nominated services





## CHAPTER

## 1

## INTRODUCTION

**Purpose of this paper**

3.1 Standards of service are an important feature in any industry. In industries where the service provider is subject to little or no competition, consumers have minimal influence over standards of service. For this reason, it is increasingly common to see industry regulators imposing minimum standards of service to ensure that consumers receive a quality and level of service at a price they are willing to pay and at a price at which service providers are willing to deliver.

3.2 This paper is the first in a series of papers to be published by the Commission exploring issues surrounding the development and implementation of a **standards-of-service framework** in the Territory's electricity supply industry.<sup>1</sup> The paper is predominantly concerned with what form such a standards-of-service framework should take, and in identifying aspects of monopoly services (to which standards are to apply) that have significant impact on costs and/or consumer value. The Commission also explores the case for implementing standards on those services where, while open to competition, the extent of actual competition is limited.

3.3 In this first paper, the Commission canvasses the general issues associated with the development and implementation of a standards-of-service framework in the Territory's electricity supply industry. The Commission has not attempted to provide an in-depth analysis of all the issues, but instead attempts to identify the broad issues relevant to the industry as whole with a view to promoting further discussion.

**Key terms**

3.4 By "standards of service" the Commission is referring to three distinct categories:

- **reliability**, which refers to the ability of a service provider to maintain the availability of the service in question, typically being measured by how often and for how long consumers go without the service during a given period;
- **quality of supply**, which refers to the specification of supply, and in the case of electricity involves measures such as voltage levels, frequency and harmonic content; and
- **customer service**, which refers to the service provider's interaction with individual customers and is generally monitored in terms of the service provider's responsiveness and dependability, and in relation to services provided and the level of complaints.

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<sup>1</sup> While some of the discussion in this paper is also relevant to the water supply and sewerage services industries in the Territory, the primary focus for now is on the electricity supply industry.

## Consultation

### ***Call for submissions***

3.5 Standards of service have relevance to all stakeholders in the Territory's electricity industry, both non-contestable customers (i.e., those customers who do not currently have a choice of retailer) and those contestable customers who may be exposed to little or no choice of supplier.

3.6 The Commission invites submissions from interested parties concerning the issues raised in this paper.

3.7 The closing date for submissions is **Friday, 19 November 2004**.

### ***Public access to submissions***

3.8 In the interests of transparency and to promote informed discussion, the Commission intends to make submissions received publicly available. However, if a person making a submission does not want their submission to be public, that person should claim confidentiality in respect of the document (or any part of the document). Claims for confidentiality should be clearly noted on the front page of the submission and the relevant sections of the submission should be marked as confidential, so that the remainder of the document can be made publicly available.

3.9 Subject to the above, submissions will be made available for public inspection at the office of the Commission, or on its website. Other information concerning standards of service and the Commission's current activities can also be found on the Commission's website.

3.10 Submissions must be made in writing. To facilitate publication on the Commission's website, the Commission prefers submissions to be made electronically by email or disk.

## CHAPTER

## 2

## SCOPE OF FRAMEWORK

2.1 The purpose of this chapter is to raise issues regarding the Commission's powers and discretions related to standards of service, and to canvass associated options regarding the scope of the proposed standards-of-service framework.

**Commission's powers**

2.2 The Commission is issuing this paper under a number of powers, and in particular:

- section 92 of the *Electricity Reform Act*, which obliges the Commission to impose minimum standards of service for the supply of electricity – being bundled generation, network and retail services – to the non-contestable customers of all licensed retailers in the Territory;
- clause 9A of the *Network Access Code*, under which the Commission is empowered to monitor and enforce under section 10(1)(a) of the *Electricity Networks (Third Party Access) Act 2000*, that requires the network service provider in the Territory's regulated networks (only Power and Water) to observe specified minimum standards of service; and
- consequential to these above two powers, sections 6(1)(c) and 6(3) of the *Utilities Commission Act*, which (respectively) authorises the Commission:
  - to develop, monitor and enforce compliance with and promote improvement in standards and conditions of service and supply; and
  - to do all things that are necessary or convenient to be done for or in connection with or incidental to the performance of such functions.

2.3 The specific nature of these powers, and the Commission's interpretation, are discussed in Appendix A.

2.4 In summary, the Commission's view is that it has the powers necessary to initiate development, through a process of public consultation, of a standards-of-services framework which:

- covers standards of service for electricity generation and retail as well as for networks;
- is capable of introduction at a time of the Commission's choosing;
- can cover standards of service for contestable customers (at least the networks component); and
- applies to all licensed entities in the Territory supplying electricity to non-contestable customers (and to the network access services provided by Power and Water to contestable customers in regulated network systems).

2.5 Where it is found that the Commission does not have all the powers necessary to adopt any particular feature of a standards-of-service framework thought appropriate following a process of public consultation,<sup>2</sup> the Commission will request that the Government grant such additional powers as may be necessary including through the making of Regulations pursuant to sections 20(2) and 24(2) of the *Utilities Commission Act*.

**Issues for comment:**

1. Are there any disagreements with the Commission's interpretation of its powers to develop and publish a standards-of-service framework (including as argued in Appendix A)?
2. What particular aspects of a framework may require a Ministerial pricing order or the making of Regulations?

## Discretions facing the Commission

### *Separate standards-of-service frameworks or a single framework?*

2.6 As noted in Appendix A, the Commission's functions in relation to standards of service vary between:

- classes of customers (with the function applying to retailers under section 92 of the *Electricity Reform Act* only applying to non-contestable customers whereas the function applying to network service providers under the Network Access Code does not distinguish between classes of customers);
- the generation, network and retail components that are bundled up to comprise electricity supply (with the function under the *Electricity Reform Act* involving all components whereas the function under the Network Access Code relates only to network access services); and
- government-owned and privately-owned electricity entities (with the function under the *Electricity Reform Act* applying to the standards of service achieved by all licensed electricity entities whether government-owned or privately-owned whereas under the Network Access Code only Power and Water currently is affected).

2.7 In addition, the reporting obligations placed by law on a licensed electricity entity vary between these functions, with the functions under the *Electricity Reform Act* placing clear reporting obligations on licensed retailers once minimum standards are set whereas the reporting obligation is implicit under the Network Access Code.

2.8 Finally, the role undertaken by the Commission in establishing standards of service varies between the *Electricity Reform Act* and the Network Access Code, with the function under the *Electricity Reform Act* placing primary responsibility on the Commission to set minimum standards of service whereas under the Network Access Code minimum standards are specified in the Code and the Commission's powers are effectively limited to subsequently approving or disapproving the network service provider's interpretation of those minimum standards. The Commission does, however, have the capacity, under its power to determine revenue or price caps applying to the regulated network service provider, to vary such revenue or price caps to reflect differing standards of service.

2.9 Faced with all these variables, the Commission has a number of options when developing a standards-of-service framework.

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<sup>2</sup> For example, the case for implementing incentive mechanisms and the like in the retail and generation segments of the Territory's electricity supply industry.

*Networks versus generation and retail*

2.10 First, there are the options of either:

- developing different frameworks to apply to network service providers under the Network Access Code and to licensed retailers (and generators) under the *Electricity Reform Act*; or
- developing a single, integrated framework capable of application – albeit possibly to varying degree – to all regulated service providers in the Territory’s electricity supply industry.

2.11 Section 92 of the *Electricity Reform Act* provides that the minimum standards of service are to apply only to non-contestable customers, but does not address which aspects of the electricity supply chain these standards apply to.

2.12 The Commission is generally of the view (in line with other regulators) that any standards-of-service framework should focus on aspects on regulated services (i.e., those monopoly services such as power networks and franchise retail) which have significant impact on costs and/or customer value. In the main, standards relating to reliability and quality of supply are the responsibility of the network service provider. However, these can also be impacted by the activities of generators. For example, in the Territory, unplanned outage based on duration were attributable 86% to networks and 14% to generation. Moreover, standards relating to customer service issues would be primarily the responsibility of the retailer, particularly in the NT context where a straight line relationship exists such that a customer’s contract is with a retailer, who in turn contracts with the network service provider and generator to ensure supply to the customer.

**Issue for comment:**

3. Are there any disagreements with the Commission’s preference to develop a single, integrated standards-of-service framework to apply across the generation, networks and retail segments of the Territory’s electricity supply industry (albeit possibly to varying degrees)?

*Non-contestable segments only or contestable segments as well?*

2.13 A related issue is whether the Commission should impose a standards-of-service framework:

- only on the regulated network service provider (in conjunction with regulated network access prices) and the franchise retailer (in conjunction with price regulation under the electricity pricing order), and encourage these parties to make commercial arrangements with other electricity entities to ensure their obligations are met (or where obligations are not met, that any penalties can be passed back to the responsible entity); or
- also on the competitive elements in the electricity supply industry, such that power generation and contestable retailing should be obligated in their own right to adhere to certain minimum standards.

**Issue for comment:**

4. Should the Commission consider imposing minimum standards of service on competitive segments in the Territory electricity supply industry (i.e., generators and contestable retailers)?

*Suppliers other than Power and Water*

2.14 Section 92 of the *Electricity Reform Act* provides that the minimum standards of service apply to non-contestable customers, implicitly regardless of supplier. While the vast majority of the Territory's non-contestable customers are currently supplied by Power and Water, a small number (mainly resident in mining towns) are supplied by other entities. By the strict definition set out in the Electricity Reform (Administration) Regulations, these latter consumers are just as much non-contestable customers as those supplied by Power and Water.

2.15 Mandating minimum standards for electricity suppliers other than Power and Water may give rise to some complexities. While section 44 of the *Electricity Reform Act* provides that the Minister may issue an order regulating prices paid by non-contestable customers, in practice the current Electricity Pricing Order applies only to Power and Water. As discussed earlier, minimum standards of service act in conjunction with mandated maximum prices. In the absence of price regulation of these entities, there would appear to be little justification for seeking to mandate a specified quality of supply.

2.16 Also at issue is the fact that the supply of electricity in these remote, isolated systems involve complexities that do not arise in urban networks. In addition, mine operations will generally take priority over electricity supply to domestic and small business consumers.

2.17 That said, it needs to be recognised that these suppliers are in a position of monopoly power, given that these customers must accept both the price and quality on offer if they wish to be supplied with electricity. At issue is whether a standards-of-service framework is the best mechanism for protecting the interests of these customers or whether a more appropriate mechanism exists.

2.18 This raises the options of either:

- developing different frameworks to apply to Power and Water than to other licensed retailers (and generators); or
- developing a single, integrated framework capable of application to all regulated service providers in the Territory's electricity supply industry.

**Issue for comment:**

5. Should the standards-of-service framework be extended to apply to licensed entities other than Power and Water in the Territory's electricity supply industry?

*Regulated versus non-regulated networks*

2.19 As well as its operations in the three urban regulated networks (the Northern Grid incorporating the interconnected Darwin and Katherine systems, Alice Springs and Tennant Creek), Power and Water is also responsible for the supply of electricity to customers in minor centres throughout the Territory (such as Elliot, Borroloola and Yulara). Network charges for these smaller systems are not regulated, although retail sales are subject to the electricity pricing order, as to date few customers have emerged outside the regulated networks large enough to qualify as contestable.

2.20 In addition, Power and Water is also responsible for the provision of electricity in some remote aboriginal communities under the Indigenous Essential Services (IES) scheme.

2.21 In the absence of price regulation of these networks entities, there may be little justification for seeking to mandate specified standards of service.

2.22 In addition, it may not be reasonable to expect the same level of reliability and quality of supply in these remote, isolated systems, a problem particularly applicable to supply under the IES scheme.

**Issues for comment:**

6. Should any standards of service relating to networks be extended to apply to non-regulated networks and the provision of electricity through the IES scheme?

***Standards of safety as well as standards of service?***

2.23 Standards of service can be distinguished from “standards of safety” especially in an electricity industry context. Under section 8 of the *Electricity Reform Act*, a Safety Regulator - which is a body separate from the Commission - is assigned responsibility for safety standards *on the customer side* of the connection point. More specifically, the Safety Regulator is charged with the responsibility of establishing and maintaining safe practices relating to:

- the use of electricity;
- the technical and safety standards for electrical installations; and
- the safety and energy efficiency standards for appliances and equipment.

2.24 Nevertheless, section 92(1) of the *Electricity Reform Act* requires the Commission to:

*“...make provisions imposing minimum standards of service and safety for non-contestable customers.” [underlining added for emphasis]*

2.25 In light of section 8 of the Act, the Commission’s preference is to leave safety standards to the Safety Regulator, being prepared to incorporate such standards into the Framework when so developed. The only area where the Safety Regulator might not have legislative powers relates to safety standards on the power system’s side of a connection point.

**Issues for comment:**

7. Is there any disagreement with the Commission’s preference to leave safety-related standards to the Safety Regulator to determine?
8. Are there safety issues that deserve the Commission’s attention that are on the power system’s side – as opposed to the customer’s side – of a connection point?





## CHAPTER

## 3

## OBJECTIVES AND PRINCIPLES

3.1 The purpose of this chapter is to canvass the broad options available as to the objectives to be served by a standards-of-service framework, and the principles to be applied in evaluating alternative design options.

**To enforce minimum standards, or to encourage improvements in standards?**

3.2 Essentially, standards of service are put in place to ensure that:

- electricity is fit for the purposes for which it is bought; and
- electricity consumers continue to be satisfied with their electricity supply where standards do not fall below those expected.

3.3 Poor standards of service may result under price controls which provide incentives to reduce expenditure, such as multi-year CPI-X price caps as apply in the Territory's electricity supply industry. There may be incentives for Power and Water to reduce costs in order to maximise profits. Such concerns warrant the targeting of avoidance of below-minimum standards.

3.4 On this basis, the challenge for the Commission is to establish incentives for service providers to maintain at least minimum standards of service. Such incentives include public reporting of standards of service performance (which puts pressure on the regulated service provider to improve performance through the demands of informed consumers), and the establishment and enforcement of standards of service.

3.5 On the other hand, an exclusive focus on minimum standards may fail to ensure that incentives are in place to *improve* standards of service over time.

3.6 Were the objective of the standards-of-service framework to include the improvement over time of standards of service in the Territory's electricity supply industry, the Commission would have to consider setting (above-minimum) targets against which to both monitor performance and provide appropriate rewards or sanctions for service providers who over- or under-perform against such targets. These targets would usually be determined having regard to the service provider's relative performance against peers nationally and possibly internationally. This would require that standards of service data be collected on a nationally (or internationally) consistent basis.

**Issue for comment:**

9. What relative emphasis should be given in the NT context to enforcing minimum standards relative to encouraging improvements in standards?

## Principles

3.7 In designing any standards-of-service framework to achieve the nominated objectives, the Commission accepts as a fundamental point that it must weigh the costs of implementation against the benefits accruing to electricity consumers.

3.8 As to other principles to be considered when designing a standards-of-service framework, the South Australian regulator has proposed a number of key principles,<sup>3</sup> including:

- **Provide appropriate level of incentives** – the framework should not duplicate other regulatory incentives. Including measures that are dealt with elsewhere in the broader regulatory framework may be seen as double counting.
- **Customer preference** – the framework should reflect, to the extent possible, the preferences of electricity consumers with respect to service.
- **Reflect performance areas influenced by the service provider** – the framework should relate to measures that the service provider can influence. A service provider should not be judged, or penalised, for standards of service problems outside its control.
- **Based on reliable data that is not costly to obtain** – the cost of obtaining reliable information must be clearly justified by the benefits to be gained. In some instance, a sampling method may be used to reduce the cost of collection.
- **Must not create perverse incentives** – the framework should provide the desired impact on standards of service without introducing a possibility of ‘game playing’.

3.9 The NSW regulator has also identified a number of key principles. While there is some understandable overlap with the SA list, the additional perspective is useful:<sup>4</sup>

*“The aims of a framework that incorporates QoS (Quality of Service) into price regulation could be to:*

- *take a comprehensive view of service quality, drawing on electricity consumer needs and wants and the capacity of utilities to meet these;*
- *provide incentives for utilities to meet QoS expectations that are efficient and enhance consumer welfare, with costs that are commensurate with benefits to consumers;*
- *enhance equity, providing incentives to provide a suitable level of QoS for all electricity consumers as well as electricity consumers that may be experiencing particular QoS issues at present;*
- *incorporate a methodology that is robust, well understood, and balances the interests of stakeholders, preferably building on the experience of others where relevant;*
- *ensure that the incentives for the regulated business regarding QoS performance are consistent with incentives in other aspects of the regulatory regime and do not weaken or conflict with more general protection provided at law; and*
- *base approaches adopted upon support obtained from stakeholders, including consumers, industry and other regulators.”*

3.10 The Commission believes these principles are equally relevant in an NT context. In making a judgment on the set of measures which underpin a standards-of-service framework, the Commission is likely to consider the above

<sup>3</sup> SAIIR (now ESCOSA), *Service Standards for 2005 to 2010 Discussion Paper*, February 2002, p.17.

<sup>4</sup> IPART, *The Incorporation of Service Quality in the Regulation of Utility Prices* (Research Paper No. 17), March 2001, p.24.

principles, but is open to considering other principles thought relevant by interested parties in the NT context.

**Issues for comment:**

10. Are the principles the Commission proposes to observe in choosing among design options for the standards-of-service framework complete? Are there other principles considered to be important in the NT context?
11. Are some of the principles identified considered to be more important than the others?

**The NT context**

3.11 The Commission is also conscious that the standards-of-service framework established must recognise the physical characteristics and performance capabilities of the underlying system in the Territory's electricity supply industry.

3.12 Based on information provided in its latest annual report, Power and Water's electricity network covers vast distances to serve a relatively small number of consumers. The network includes 728 km of high voltage transmission line and 6,915 km of low voltage distribution lines delivering 1,538 GWh to 67,413 customers. By way of comparison, Country Energy, whose distribution network in western NSW encompasses 72% of that state, has almost 180,000 km of distribution power lines, services 716,000 customers and transported about 10,000 GWh of electricity, while ETSA Utilities, the South Australian distributor, has 77,603 km of distribution power lines servicing 756,000 customers, and delivered over 10,000 GWh of electricity.

3.13 In addition to its size and remoteness, Power and Water's networks also face a number of climatic challenges operating in Australia's northern tropics, including a high incidence of lightning strikes and heavy storm activity around Darwin and Katherine in the wet season. Moreover, the extended radial nature of the Territory's electricity system has significant implications for standards of service.

3.14 The Commission recognises that measures and targets relating to standards of service suitable to a highly integrated urban system may not be appropriate (or achievable) for the Territory electricity system. The costs of meeting standards of service applicable to other networks may be prohibitive. The system characteristics must also be considered in benchmarking Power and Water's performance against other Australian and international networks.

**Issue for comment:**

12. Has the Commission covered all the elements necessary when it comes to defining "the NT context" for the purposes of devising a standards-of-service framework?



CHAPTER  
4

MEASURING STANDARDS OF SERVICE

4.1 The purpose of this chapter is to canvass the alternative measures available to characterise the levels and standards of service.

Elements of a standards-of-service framework

4.2 Broadly, standards of service can be benchmarked and monitored in three categories: reliability, quality of supply and customer service. Measures of each are discussed in turn below.

Reliability

4.3 Reliability refers to the ability of a service provider to maintain the availability of supply to consumers.

4.4 For electricity supply, reliability is measured by how often and for how long consumers go without electricity supply during a given period. System-wide reliability measures are generally derived from aggregates of interruption duration, interruption frequency, and the number of network users affected. There are four broad measures commonly used in practice, and these are outlined below.

SAIDI – System Average Interruption Duration Index<sup>5</sup>

4.5 SAIDI measures the average minutes of off supply per customer. It is the total minutes, on average, that a customer could expect to be without electricity in a year, and comprises both planned and unplanned outages. It is calculated as the sum of the duration of each interruption (in minutes), divided by the total number of connected customers averaged over the year.

$$\frac{\sum_{\text{interruption}} [\text{Interruption duration (minutes)} \times \text{No. of customers affected}]}{\text{Total no. of customers}} \quad \text{(expressed in minutes per period)}$$

4.6 Power and Water currently reports SAIDI in its Annual Report, separately reporting generation and network SAIDI before combining the two measures into an overall SAIDI figure.

<sup>5</sup> Also known as SAOD – System Average Outage Duration.

*SAIFI – System Average Interruption Frequency Index<sup>6</sup>*

4.7 SAIFI measures the average number of interruptions per customer. It is the number of occasions per year when each customer could, on average, expect to experience an unplanned interruption. It is calculated as the total number of customer interruptions, divided by the total number of connected customers averaged over the year. SAIFI usually excludes momentary interruptions (less than one minute duration).

$$\frac{\text{Total no. of interruptions}}{\text{Total no. of customers}} \quad (\text{expressed in interruptions per customer})$$

*CAIDI – Customer Average Interruption Duration Index<sup>7</sup>*

4.8 CAIDI measures the average interruption duration per customer. It is the average time taken for supply to be restored to a customer when an unplanned interruption has occurred. It is calculated as the sum of the duration of each customer interruption (in minutes) divided by the total number of customer interruptions. CAIDI usually excludes momentary interruptions (less than one minute duration).

$$\frac{\sum_{\text{interruption}} [\text{Interruption duration (minutes)} \times \text{No. of customers affected}]}{\text{Total no. of interruptions}} \quad (\text{expressed in minutes per interruption})$$

4.9 There is a strong interrelationship between these first three reliability measures. The average loss of supply (in minutes) per customer over a year (SAIDI) is the average number of interruptions per consumer (SAIFI) multiplied by the average duration of each supply interruption within a particular year (CAIDI).

4.10 The components of SAIDI are considered to represent a meaningful way to express performance as they represent the practical steps that a service provider can take to improve supply reliability. For example, a service provider can take actions to reduce the frequency of interruptions (SAIFI) and/or the time to restore supply once an outage has occurred (CAIDI), both of which would reduce SAIDI.

*MAIFI – Momentary Average Interruption Frequency Index*

4.11 This fourth indicator measures the average number of momentary interruptions per customer. It is an indication of the total number of momentary interruptions (less than one minute) that a customer could, on average, expect to experience in a year. It is calculated as the total number of customer interruptions of less than one minute<sup>8</sup> in duration, divided by the total number of connected customers average over the year.

$$\frac{\text{No. of momentary interruptions}}{\text{Total no. of customers}} \quad (\text{expressed in interruptions per customer})$$

4.12 Recognising the technical limitations and costs associated with collecting MAIFI data, the Steering Committee on National Regulatory Reporting Requirements (SCONRRR) review of regulatory reporting requirements, has recommended that the adoption of MAIFI as a key performance indicator remain optional for each jurisdictional regulator.<sup>9</sup>

<sup>6</sup> Also known as SAOF – System Average Outage Frequency.

<sup>7</sup> Also known as ACOT – Average Customer Outage Time.

<sup>8</sup> It should be noted that there is some variability in practice as to what is classified as a momentary interruption. While 1 minute appears to be most widely used in practice, Victoria classifies a momentary interruption as one lasting less than 30 seconds, whereas the UK allows 3 minutes.

<sup>9</sup> Utility Regulators Forum, *National Regulatory Reporting for Electricity Distribution and Retailing Businesses*, March 2002 [http://www.accc.gov.au/utipubreg/publications/elec\\_dis\\_pap.pdf](http://www.accc.gov.au/utipubreg/publications/elec_dis_pap.pdf).

4.13 A network user preference study undertaken by ESCOSA<sup>10</sup> indicates that customers do not place a high value on improvements in momentary interruptions across the network. The results would indicate that alternative solutions that are targeted towards specific customers that do value improvements in momentary interruptions might be more appropriate. These solutions could include, for example:

- information on uninterruptible power supplies (UPS) for computer equipment;
- incentives to those who install a UPS; or
- influencing the design of products so that they hold the charge during momentary interruptions. The products that were most frequently mentioned during the qualitative phase of the consumer research were digital clocks, security lights and garage door controllers.

4.14 The Commission recognises that the frequency of momentary interruptions may therefore have a limited role to play as a performance measure.

**Issues for comment:**

12. Which measures of reliability should be included in the Territory's standards-of-service framework?
13. Would the technical and cost implications of including MAIFI in the standards-of-service framework be justified in the Territory?

*Poorly performing network segments*

4.15 The above measures are merely *average* measures, and as such will not identify areas with exceptionally poor reliability (which are the areas that affected customers may be critically concerned about). In addition, these measures may not provide the appropriate basis for identifying a deficiency in standards of service in areas of poor reliability.

4.16 Even if a large proportion of customers are satisfied with their current level of service and, as such, are not willing to pay for improvements to their current level of service, there may still be a role to be played by focussing on the worst served consumers.

4.17 In addition to the standard industry average measures discussed above, therefore, measures are also required that indicate standards being achieved for the worst served consumers. This implies performance measures such as:

- percentage of consumers who experience more than  $x$  interruptions per year;
- percentage of consumers who experience more than  $y$  minutes of interruptions per year; and
- percentage of consumers who experience a longest interruption more than  $z$  minutes over the past year.

4.18 Alternatively, such measures could be based on percentages of feeders experiencing these service problems. Where reporting is based on the percentage of consumers, the incentive may be to maximise the number of consumers whose performance is brought above the 'threshold' level, rather than to improve feeders that may serve relatively few consumers.

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<sup>10</sup> ESCOSA, *Electricity Distribution Price Review: Service Standard Framework - Initial Thoughts*, April 2003, p.13.

**Issue for comment:**

14. What measures should be adopted in the Territory's standards-of-service framework to indicate reliability in poorly performing sections of the network?

**Quality of supply**

4.19 Quality of supply refers to the electrical specification of supply, and involves measures such as voltage levels, frequency, and harmonic content. Quality of supply is increasingly of concern to both industrial and domestic consumers as the number of voltage sensitive equipment becomes prevalent, such as computers and other electronically-controlled systems.

4.20 The South Australian regulator has discussed quality of supply in terms of deviations from 'perfect power' including:<sup>11</sup>

- excessive variations in the range of the supply voltage – this relates to supply of over-voltage or under-voltage beyond the standard range;
- rapid variations in supply voltage – this are systematic variations of the voltage envelope or a series of random voltage changes, the magnitude of which does not normally exceed the standard voltage ranges;
- switching transients – these are short-term distortions (milliseconds) to the voltage waveform caused by switching operations and can result in severe over-voltage;
- voltage dips – this is a single short duration reduction in the supply voltage level generally occurring through faults on the distribution network;
- voltage unbalance – this is sometimes defined as the maximum deviation from the average of the three-phase voltage or currents, divided by the average of the three-phase voltages; and
- harmonics – these are sinusoidal voltages or currents having frequencies that are integer multiples of the frequency at which the supply system is designed to operate.

4.21 While the quality of supply is the subject of fairly detailed regulation specified in various Australian Standards, what is generally not covered is monitoring and reporting the response to, and prevention of, these technical problems. This aspect could be included in a standards-of-service framework under a monitoring arrangement. A common approach to monitoring technical effectiveness (quality of supply) of service providers is through customer feedback, or complaints, with respect to voltage problems.

4.22 The Queensland regulator has set guidelines for reporting (among other things) the number of complaints in relation to voltage events such as voltage dips, swells, spikes etc. rather than the measured occurrences of these events.<sup>12</sup>

<sup>11</sup> SAIIR (now ESCOSA), *Service Standards for 2005 to 2010* Discussion Paper, February 2002, p.22.

<sup>12</sup> QCA, *Distribution: Service Quality Reporting Guidelines*, October 2001.



**Issues for comment:**

15. Which of the various service quality measures identified by the Commission should be given the highest priority in the Territory's standards-of-service framework?
16. Are there other measures of service quality that deserve to be considered?
17. Might monitoring of customer feedback alone as to service quality be sufficient? Or should quantitative primary data be reported rather than relying on secondary customer reporting of problems?

**Customer service**

4.23 Customer service refers to a service provider's interaction with individual customers. It is generally monitored in terms of the service provider's responsiveness and dependability, and in relation to services provided and the level of complaints.

4.24 A common approach to monitoring customer service levels for service providers is to establish the number of times a particular service is provided (e.g., number of new connections) and record how often the service provider fails to meet reasonable customer expectations in relation to that service. The ranges of activities commonly monitored by other regulators are:

- network call centres;
- appointments made with electricity consumers;
- provision of connections;
- public lights;
- planned interruptions; and
- general complaints.

4.25 In a paper prepared for the Utility Regulators Forum, it was proposed that network customer service be monitored under the following categories:<sup>13</sup>

*Timely provision of services – The number of connections on or before the agreed date includes connections not provided within any regulated time limit and connections not provided by the date agreed with a customer.*

*Timely repair of faulty street lights – The number of days taken to repair a street light is counted from the date of notification of a faulty street light rather than the date the street light ceased working.*

*Call centre performance – A call is answered when the caller speaks to a human operator, but not when the call is placed in an automated queuing system. The number of telephone calls does not include calls to payment lines and automated interactive services.*

*Customer complaints – A complaint is defined by Australian Standard 4269:1995 as any expression of dissatisfaction with a product or service offered."*

**Issues for comment:**

18. Which two or three of the various customer service measures identified by the Commission should be given the highest priority in the Territory's standards-of-service framework?
19. Are there other measures of customer service that deserve to be considered?

<sup>13</sup> Utility Regulators Forum, *National regulatory reporting for electricity distribution and retailing businesses* discussion paper, March 2002, p.8.

## Data segmentation

4.26 In assessing standards of service, it may also be important that data be segmented into distinct categories to allow for comparisons among systems with broadly similar characteristics. Customer densities vary significantly across the Territory and, as a result, this can lead to differing levels of service delivered. For example, in high-density areas such as the Darwin CBD, the network is characterised by multiple redundancy. Conversely, the very low customer density such as in remote rural areas means that there will be limited, if any, redundancy in local distribution systems. As a result, a failure in a component in a CBD network is likely to have only a minor impact on supply whereas a similar failure in a remote area may result in a major power outage for consumers.

4.27 It is therefore likely to be important that standards of service are measured in such a way as to reflect the geographic and demographic characteristics of the different parts of the Territory. The segmentation of data could be based on population density and categorisation of the type of feeder used in these areas. For example, regulators nationally have agreed to segment data using the following feeder categories:<sup>14</sup>

- **CBD** – a feeder supplying predominantly commercial and office buildings, supplied by a predominantly underground distribution network containing significant interconnection and redundancy when compared to urban areas;
- **Urban** – a feeder, which is not a CBD feeder, with actual maximum demand over the reporting period per total feeder route length greater than 0.3 MVA/km;
- **Rural short** – a feeder which is not a CBD or urban feeder with a total feeder route length less than 200 km; and
- **Rural long** – a feeder which is not a CBD or urban feeder with a total feeder route length greater than 200 km.

4.28 However, in the South Australian regulator's current review of standards of service, the distributor has submitted that the four regions currently used in a performance incentive scheme in that State increase its complexity and, as such, the scheme does not provide clear and transparent signals to target service improvements. The distributor has also stated that it is not appropriate to set equally weighted performance measures for the CBD area and remote area, given that they account for only about 5% of its total customer base. The distributor submitted that adopting a simpler urban/rural split would resolve this issue. The South Australian regulator has agreed with this view, and is proposing to adopt the suggestion of distinguishing between urban and rural regions for the service incentive scheme.<sup>15</sup>

4.29 Other forms of data segmentation for reliability and retail customer service measures have been agreed by regulators at the national level. These include unplanned versus planned outages, and residential versus business customers.

### Issues for comment:

20. Is there a need, in the NT context, for segmentation of standards of service data?
21. What are the appropriate categories for segmentation in the Territory?

<sup>14</sup> Utility Regulators Forum, *National regulatory reporting for electricity distribution and retailing businesses* discussion paper, March 2002, p7.

<sup>15</sup> ESCOSA, *Electricity Distribution Price Review: Service Standard Framework Initial Thoughts*, April 2003, p.20.

## CHAPTER

## 5

**ESTABLISHING BENCHMARKS**

5.1 The purpose of this chapter is to canvass the alternative types of benchmarks and targets that could be used as part of a standards-of-service framework, and the role to be played by customers in setting such targets.

**Setting target performance levels**

5.2 In any standards-of-service framework, industry participants must know in advance the level of the target performance to be achieved. Importantly, they must perceive the targets to be fair and to have been developed using a robust methodology. This section discusses a number of approaches to developing target performance levels. The Commission seeks comment on the appropriateness of these approaches or some combination of them.

5.3 Depending on whether the objective adopted by the standards-of-service framework are to enforce minimum standards or to encourage improvements in standards (or both), standards of service benchmarks will need to be (respectively) defined in terms of 'floor' (i.e., minimum level) targets or 'ceiling' (i.e., aspirational level) targets, or both.

**'Floor' (i.e., minimum level) targets**

5.4 Where 'floor' (i.e., minimum level) targets are the chosen benchmarks, such targets could be set based on company historic performance, using information on recent levels of performance, and longer term trends in improvement. It could be argued that this is the approach envisioned by section 92(2)(a) of the *Electricity Reform Act*, which requires that service levels do not fall below those observed in 1999-00, the year prior to commencement of that section.

5.5 An advantage of historical comparison is that it takes into account implicitly the operating characteristics of the service provider in question. Given the legislative requirement, historical comparison has some advantage in information continuity. It would presumably be possible to commence a Northern Territory standards-of-service framework relatively quickly based on the measures that were in place in 1999-00 and augment it over time as information collection and measurement improves.

5.6 Disadvantages include the fact that historic performance does not always provide an accurate guide to the scope for future performance, particularly if technology changes, or if the service providers face lower incentives to improve service quality. A further complication arises if data are not readily comparable over time.

5.7 If historic performance data are used to inform future targets, it is important to ensure that targets are not based on a year when performance was atypical (perhaps due to external events such as fires and storms). This might be avoided by looking at a rolling average of performance over several years, rather than any one year in isolation.

5.8 Experience from other jurisdictions suggests that regulators usually use a combination of approaches to help inform service quality targets, for a combination of comparative and company-specific information.<sup>16</sup>

**Issue for comment:**

22. How should minimum standards of service be determined in the NT context? What should be the relative role played by company-specific versus comparative data?

**‘Ceiling’ (i.e., aspirational level) targets**

5.9 Where ‘ceiling’ (i.e., aspirational level) targets are the chosen benchmarks, service quality performance targets that are set relative to the performance of other companies (i.e., in some form of service quality benchmarking) can give strong incentives to improve performance. For example, if targets are set at the average industry performance level, service providers are rewarded for performance above that average, and penalised for performance below the industry average. Service providers will have incentives to improve service quality as much as possible, in the hope of providing an above-average service, and therefore increasing revenues through the incentive mechanism.

5.10 A further advantage of comparative targets is that the target-setting process is relatively straightforward, if the target is simply the reported industry average. Alternatively, company-specific targets could be established to reflect the comparative performance of ‘peer companies’ with similar operating characteristics.

5.11 Comparative target approaches are not without their practical disadvantages. Finding an electricity business whose operating characteristics are similar to Power and Water presents an initial challenge. In addition, in order to allow for differences in company operating environments, some form of adjustment will be needed to reflect the unique characteristics of Power and Water relative to the comparative network businesses. For example, it may be reasonable to conclude that, due to differences in network characteristics, the Power and Water SAIDI target should be set at (say) 125% of the similar Australian Inland Energy target.

5.12 Distinct from comparative targets are what is referred to as continuous improvement targets. These latter targets are based on a combination of company-specific historical information and industry average information. Using this approach, the regulator examines how a service provider’s own targets for the next regulatory period alter its position relative to other companies. For example, if a service provider proposes targets that would see its ranking relative to other service providers fall, this would imply that the company in question was making slower improvement progress than the other businesses. A move from an above-average performance to a below-average performance may warrant further investigation.

5.13 However, continuous improvement targets must be viewed with caution; a reduction in relative ranking would not necessarily mean that a service provider’s progress is unsatisfactory. Service providers that are already close to service quality best practice would be expected to make smaller incremental improvements than other companies that have greater scope for ‘catch-up’.

**Issue for comment:**

23. How should targeted improved standards of service be determined in the NT context? What should be the relative role played by comparative targets versus continuous improvement targets? How might such targets be best determined?

<sup>16</sup> see IPART, *Providing Incentives For Service Quality In NSW Electricity Distribution: An Issues Paper* (Discussion Paper DP63, May 2003), p.21.

## Customer preferences

5.14 Assessing customer preferences would seem important in the standards setting process, because it allows consumer value to be linked with the performance of service providers. This is done by structuring a standards-of-service framework in a way which reflects consumers' expectations and therefore gives service providers a way of focusing their efforts to at least maintain or outperform standards.

5.15 In setting minimum standards of service, a balance must be achieved between price and service levels while ensuring that the service provider can maintain these service levels in the long term. While consumers are generally aware of the service/price trade-off, and that increases in standards of service will be accompanied by an increase in price, a more rigorous assessment of their expectations would assist in striking the correct balance.

5.16 In developing standards of service, it may be important for there to be an understanding of the value attached to the different dimensions of service levels in the Territory. Such an understanding would assist to:

- confirm the indicators that are used to measure service performance are appropriate;
- derive weights for the different indicators;
- determine the size of the reward (penalty) that is provided for above (below)-target performance; and
- resolve other design issues, such as whether a different reward (or weights) should apply in different areas.

5.17 Evaluating consumer preferences regularly would also provide signals on how and where the service provider can be provided with an incentive to maintain or increase standards of service, as well as to determine when those standards need to be revised.

5.18 The most common approach in assessing customer preferences is to survey a sample of customers directly. A survey can assist in determining appropriate performance measures and assists in estimating the value of these measures across different customer classes and different regions. However, such surveys can be expensive, and might not always be conclusive.

**Issues for comment:**

24. What issues should be considered in balancing customer preferences with compliance cost incurred by service providers?

25. Is a customer survey the best way of establishing customer preferences? What other options are available?



## CHAPTER

## 6

**REGULATORY INSTRUMENTS**

6.1 Having discussed the types of measures used to report varying levels of service and the issues associated with establishing any benchmarks, the Commission now seeks comment on the question of the approach to regulating standards of service. This chapter outlines the main options available.

**Monitoring and reporting**

6.2 Effective monitoring is based on:<sup>17</sup>

- periodic reporting of defined standards of service indicators;
- explanations and justifications by the service providers of their performance;
- service/quality-related information reported by complaints-handling bodies and regulators; and
- the results of independent performance evaluations such as benchmarking studies and audits.

6.3 A monitoring program should be broad enough to:

- cover services which are economically significant; and
- ensure that information gleaned from the monitoring program can be placed in its proper context in assessing performance (this will require, for example, information on the characteristics of the service provider's assets and customers).

6.4 The breadth of coverage should, however, be constrained by:

- the need to maintain a focus on key standards of service indicators; and
- the cost of monitoring, from the perspective of both the regulator and service provider.

6.5 In publishing data relating to service performance, consideration should be given to:<sup>18</sup>

- the extent to which standards of service are influenced by factors which are not under the direct control of the service provider, so as to appropriately attribute responsibility for performance;
- the views of other organisations responsible for monitoring aspects of performance of the service providers;
- identifying the target audience of service monitoring reports and ensuring that the reports meet the audience's diverse needs; and

<sup>17</sup> Utility Regulators Forum, *Quality of Service Monitoring* discussion paper, October 1999.

<sup>18</sup> Utility Regulators Forum, *Quality of Service Monitoring* discussion paper, October 1999, p.2.

- the appropriate interval between reports.

6.6 Against this background, the first main option available for implementing and enforcing a standards-of-service framework is the reporting of service performance against targeted levels. This can play an important role in facilitating customers, media and other stakeholders in critically assessing and making a judgment on the level of performance of a particular service provider compared to minimum standards or other similar providers. It also facilitates informed negotiations between consumers and service providers on local or generalised quality improvements.

6.7 The Commission's current preference is to publish such information itself annually although publication only by service providers is also an option.

6.8 Compared with alternative regulatory instruments discussed below, the reporting option is relatively straight forward to implement and is arguably a pre-requisite for these other mechanisms.

6.9 A reporting approach involving minimum standards can be supplemented as necessary by legal remedies, where service providers face incentives from the possibility of awards of compensation by the courts or complaints handling bodies for sub-standard service that causes loss or damage. This form of incentive may be relatively effective, but carries high transaction costs that may limit its impact.

**Issues for comment:**

26. Would the periodic publication of standards-of-service information against set benchmarks be a sufficient form of regulation in the NT context?
27. Who should publish, and how frequently, such standards-of-service information?
28. What guidelines should the Commission adopt concerning the nature of publication of such information and the associated documentation? To what extent should comparable information (from prior periods or other comparable networks) be included in the publication?
29. Might it be necessary to restrict any regulatory regime to monitoring and reporting for a period of years, before consideration is given to adding service incentive mechanisms and penalties (as canvassed below)?

## Service incentive mechanisms

6.10 A key consideration when implementing a standards-of-service framework is the types of incentives to be established for service providers to improve standards of service, and to ensure that they do not drop below mandated minimum standards.

6.11 There are a number of methods of encouraging service providers to achieve specified standards of service using incentive mechanisms. The Utility Regulators Forum<sup>19</sup> outlined the two main incentive mechanisms which could be incorporated into a standards-of-service framework beyond the comparative reporting of service performance. These mechanisms are discussed in turn below.

### ***Price control adjustments in response to service performance***

6.12 The usual form of this incentive is to reduce prices when performance falls below benchmark levels, and conversely increase prices when performance exceeds benchmark service levels. The size of the adjustment would generally be proportional to the difference between actual and benchmark levels, but may be capped at particular intervals. With this type of incentive, a regulator attempts to limit/avoid 'gaming' behaviour by service providers and thus seeks to ensure that price adjustments reflect

<sup>19</sup> Utility Regulators Forum, *Quality of Service Monitoring* discussion paper, October 1999.



the different levels of service actually received by individual consumers, or the value placed by different customer segments on that service.

6.13 The approach taken by the Victorian regulator in 2000 was to add an S factor into the existing CPI-X price control formula using the following formula:<sup>20</sup>

$$\text{Price control} = \frac{(1 + \text{CPI}) (1 - X) (1 + S_t)}{(1 + S_{t-6})}$$

where:

$S_t$  is the S factor for the year in question, and

$S_{t-6}$  is the S factor in the calendar year t-6.

6.14 S in any one year is calculated by multiplying a pre-determined incentive rate for each key performance indicator and each network type by the performance gap (i.e., the difference between target performance and actual performance) relative to the performance gap in the previous year, for that performance indicator and network type. The calculated results for each performance indicator and network type are summed to give the S factor for that year.

The formula for this calculation is:

$$S_t = \sum \frac{I_{i,n}}{R_{\text{base year}}} \times [ (P_{\text{target } i,n,t-1} - P_{\text{actual } i,n,t-1}) - (P_{\text{target } i,n,t-2} - P_{\text{actual } i,n,t-2}) ] \times 100$$

Where:

$S_t$  is the adjustment for the year in question, for the service provider in question, expressed as a percentage

$I_{i,n}$  is the incentive rate for indicator  $i$  and network type  $n$ , for the service provider in question

$R_{\text{base year}}$  is the revenue requirement for the base year of the control period

$P_{\text{target } i,n,t-1}$  is the service provider's performance target for indicator  $i$  and network type  $n$  in the previous year (t-1)

$P_{\text{actual } i,n,t-1}$  is the service provider's actual performance for indicator  $i$  and network type  $n$  in the previous year (t-1)

6.15 The S factor is driven off performance in the year just passed (t-1) compared to performance in the year before that (t-2). This means that the S factor has a relative aspect to it: it takes into account the extent to which the service provider has closed the performance gap between target and actual performance compared to the previous year. The Victorian regulator's targets for each service provider shift through time, becoming tougher as the regulatory period elapses, meaning that the S factor also has an absolute aspect to it.

<sup>20</sup> This summary discussion draws heavily on IPART, *Providing Incentives For Service Quality In NSW Electricity Distribution: An Issues Paper* (Discussion Paper DP63, May 2003). For a complete and detailed description of the mechanics and incentive rates associated with the S Factor approach, see Essential Services Commission Victoria, *Electricity Distribution Price Determination 2001-05 Volume I Statement of Purpose and Reasons*, September 2000, Appendix D. Downloadable from <http://www.esc.vic.gov.au/apps/page/user/pdf/detervol1sep00.pdf>.

- 6.16 The Victorian regulator's S factor:
- runs off three key performance indicators (CAIDI, unplanned SAIFI and SAIDI) – different weightings are attached to each of these indicators to reflect the relative importance attached to them by customers: 100% for unplanned SAIFI, 65% for unplanned CAIDI and 25% for planned SAIDI; and
  - disaggregates performance by network (feeder) type: CBD, Urban, Rural Long and Rural Short. This reflects the fact that differences in operating characteristics affect the levels of reliability that can realistically be achieved on different parts of the network. Targets and incentive rates are set on an individual basis, and therefore differ for each service provider for each feeder type.

6.17 The fact that the Victorian regulator's approach is based on the size of the gap between target performance and actual performance also means that the incentives for service providers to improve service quality are continuous. This contrasts with a situation where penalties or incentives operate only on a 'pass or fail the target' basis. Pass-fail incentives can lead to discontinuities in service provider incentives – i.e., once the target has been passed, the service provider has no incentive to improve service quality further.

### ***Customer compensation payments***

6.18 The minimum standards and incentive schemes as discussed above are based around average performance for customers. Under some circumstances, it may be appropriate to supplement these approaches with a scheme of payments to individual customers for whom certain guaranteed service levels (GSLs) are not met. Under such an approach, the service provider is required to make guaranteed payments to customers that receive service below a certain benchmark.

6.19 Such GSLs might be equal to the minimum standard (so that any consumer receiving a level of service worse than the minimum is eligible to receive a payment) or be at a level significantly worse than the minimum specified for a group of consumers (e.g., for very poor reliability performance).

6.20 The GSL scheme could be viewed as acting to augment the standards of service incentive scheme. For example, the service provider could receive an incentive for reducing its SAIDI measure below (say) 120 minutes. In addition, a GSL payment could be made to consumers experiencing over 150 minutes off-supply.

6.21 Various regulatory bodies have introduced individual customer compensation payment systems, and different approaches to the payment of penalties. For example, payments in Victoria and some standards in the UK are automatic. For other standards in the UK, the payment is by customer claim. NSW operates a system featuring customer-initiated payments and a simultaneous campaign to inform customers of their rights. The scheme that the South Australian regulator intends to implement (see Appendix B) involves the service provider making GSL payments on a proactive basis.

6.22 The argument for automatic payment has three main points:

- Requiring a customer to claim a GSL payment increases the cost to customers of a breach of minimum standards. The increased effort may act as a disincentive for customers to file a claim.
- Automatic payment reduces the analysis needed to estimate the cost to businesses of the payments, as there is no need to determine the percentage of eligible customers who will make a claim.
- Automatic payment allows the standards to be more finely tuned to the system characteristics. Under a customer claim regime minimum standards must be

very simple, as more complex standards increase the chance that customers will not know their rights and consequently not claim.

6.23 Generally, guaranteed payment schemes provide a minor financial incentive to the service provider, although they may have a significant symbolic value to customers and service providers. Transaction costs can be low, but the incentive effects may be moderate given that payments are of a fixed size and bear no necessary relationship to the value placed by the customer on the reduced service.

**Issues for comment:**

30. What scope is there in the Territory's standards-of-service framework for a revenue/price cap adjustment mechanism similar to the Victorian regulator's S factor?
31. What role should Guaranteed Service Level payments play in the Territory's standards-of-service framework?
32. What types of service should be subject to GSL treatment? How should the level of any GSL payments be determined? Should GSL payment be automatic or customer-initiated?



## CHAPTER

## 7

## NEXT STEPS

7.1 The purpose of this final chapter is to identify the main timing options in progressing and rolling out a standards-of-service framework in the Territory.

**Consultation steps**

7.2 The Commission plans to roll out a standards-of-service framework progressively after a series of public consultations.

7.3 Within each of the stages it adopts, the Commission intends to undertake a public consultation process, involving:

- the development and publication of the Commission's draft position;
- after which comments and submissions will be sought from interested parties addressing this draft position; and
- once submissions had been received, the Commission will arrive at its final position after taking into account legislative requirements and the views expressed in submissions.

**Development stages**

7.4 In principle, three separate stages can be distinguished in the development and rollout of the standards-of-service framework:

- first, deciding on the particular measures of standards of service to be used in the framework;
- secondly, setting the benchmarks or targets to apply to certain of the adopted measures, and against which standards of service will be reported; and
- thirdly, devising reward and/or penalty schemes to provide incentives to service providers to achieve the set benchmarks or targets and perhaps direct compensation to customers.

7.5 The main issue at the moment from the Commission's perspective is the timetable (and sequencing) to be adopted in progressing through the various stages.

7.6 Basically, there are two alternatives here. The first is to deal with these stages sequentially, with an appropriate lapse of time between each stage. This was the timeframe initially envisaged by the Commission in its November 2003 final methodology decision as part of the 2004 regulatory reset under the Network Access Code:

*“Initially, this is likely to see arrangements that ensure quality standards do not deteriorate in response to price regulation during the second regulatory control period, by:*

- *establishing service quality benchmarks that reflect the actual levels of service quality that are consistent with the basis of pricing; and*
- *monitoring and publishing the network service provider's actual performance against these benchmarks.*

*Following that, the Commission expects to develop a process – through public consultation – whereby a dialogue is facilitated between end users and the network service provider regarding the scope for improvements in service standards and the associated pricing consequences. Only through such a process will additional average price adjustments be allowed in addition to those allowed by the CPI-X price path. It is possible that such a mechanism will not be in place until well into the second regulatory control period.*

*Finally, consideration may also be given to developing a performance incentive scheme to sharpen the incentives for the network service provider to meet and exceed established service standards or benchmarks. This could include mechanisms for adjusting future price caps where under-performance against the established benchmarks has occurred or is expected to occur. Such a scheme would be developed only after an extensive process of public consultations by the Commission. Any performance incentive scheme that may be developed in this way would not apply until the third regulatory control period [i.e., commencing 1 July 2009].<sup>21</sup> (underlining added for emphasis)*

7.7 The advantage of this process is that there would be a period of at least two years in which experience could be derived from publishing standards-of-service information before incentives and penalties were also implemented. This way, there would be time for confidence to be gained about the appropriateness of the measures and benchmarks chosen as a basis for any incentives and penalties. The downside is that it would be another four to five years before such incentives were finally in place.

7.8 The alternative would be to undertake the first two stages (choosing measures/indicators and setting benchmarks) together, and to proceed to implementing a reward and penalty regime relatively quickly after that.

7.9 Given likely customer interest in these matters, and in order to stimulate debate on the issue, the Commission puts forward the timetable on the page following as the most ambitious that could be contemplated in the circumstances.

**Issue for comment:**

33. What are the views of interested parties regarding the merits of the Commission adopting the proposed timetable (and associated sequencing of stages)?

7.10 The Commission will settle on a final timetable after it has had the opportunity to consider the views expressed in submissions.

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<sup>21</sup> Utilities Commission, *Networks Pricing: 2004 Regulatory Reset – Final Methodology Decision Paper*, November 2003, p.25.

Item	Timeframe
possible public forum	October 2004
submissions due on <i>Issues Paper</i>	19 November 2004
publication of the Commission's <i>Draft Position Paper</i> , proposing a standards of service monitoring regime (including appropriate standards of service targets)	March 2005
submissions due on <i>Draft Position Paper</i>	May 2005
<i>Final Decision</i> published	June 2005
commence monitoring regime	1 July 2005
commence publication by the Commission of an <i>Annual Standards of Service Report</i>	end-2005
public consultation regarding possible incentive mechanisms	2005-06
Commission decision on incentive mechanisms	June 2006
commence incentive mechanisms	1 July 2006





## APPENDIX

## A

## LEGISLATIVE BASIS FOR FRAMEWORK

This Appendix provides details of the Commission's interpretation of its legislative powers to develop a standards-of-service framework.

**Utilities Commission Act 2000**

Among the functions of the Commission set out in section 6(1) of the *Utilities Commission Act* is:

*“(c) to develop, monitor and enforce compliance with and promote improvement in standards and conditions of service and supply under relevant industry regulation Acts.”*

Hereafter, for ease of reference, we abbreviate the term “standards and conditions of service and supply” to **standards of service**.

In performing all of its functions, the Commission must, under section 6(2) of the Act, have regard to the need (among other things):

*“(e) to ensure consumers benefit from competition and efficiency; [and]*

*(f) to protect the interests of consumers with respect to reliability and quality of services and supply in regulated industries”*

Under section 6(3) of the Act:

*“The Utilities Commission has the power to do all things that are necessary or convenient to be done for or in connection with or incidental to the performance of its functions under this or another Act.”*

The Commission's exercise of the functions envisaged in section 6(2)(c) of the Act is possible only where either:

- the development, monitoring and enforcement of compliance with standards of service; and/or
- the promotion of improvement in such standards of service

are specifically authorised by one of the “relevant industry regulation Acts” in the Northern Territory.

These relevant industry regulations Acts are, with respect to the electricity supply industry:

- the *Electricity Networks (Third Party Access) Act 2000*, of which the Network Access Code is a schedule; and
- the *Electricity Reform Act 2000*.

## Electricity Networks (Third Party Access) Act

One of the functions of the Commission under section 10(1)(a) of the *Electricity Networks (Third Party Access) Act* is to monitor and enforce compliance with the Network Access Code. Furthermore, section 10(2) of the Act empowers the Commission to do all things that are necessary or convenient to be done for or in connection with or incidental to the performance of its functions.

### Clause 9A

Clause 9A of the Network Access Code states that:

*“Unless specifically agreed otherwise with network users in their access agreements, the network provider must use reasonable endeavours to provide network access services of a quality and a standard at least equivalent to the greater of:*

- (a) the levels prevailing during the year before the commencement of this Code; and*
- (b) the levels prevailing during the year before commencement of the access agreement.”*

The requirement under clause 9A of the Code that the standards of service at which network access services are provided by a (regulated) network service provider should not fall below historical levels, coupled with the Commission’s power under section 10(2) of the Act to do all things that are necessary to be done for the performance of its functions, provide the Commission with an oversight role – in the network segment of the electricity supply industry at least – in establishing both:

- the standards of service prevailing during the year before the commencement of this Code; and
- the standards of service prevailing during the year before commencement of the access agreement.

It is noteworthy that the requirement of clause 9A is merely that the network service provider must use ‘reasonable endeavours’ to provide network access services at the requisite standards, which would imply that establishing that standards of service actually failed to meet the requisite standards may be a necessary but not sufficient requirement for non-compliance with clause 9A to be established.

The Commission also appreciates that there can be an acceptable trading-off made between price and standard of service, and that the network service provider and network users have the capacity to negotiate, in their access agreements, appropriate prices and discounts depending on the standard of services agreed. In May 2002, the Commission issued a *“Framework for negotiation of discounted network tariffs”*<sup>22</sup> where network access tariffs may be negotiated below the approved reference tariffs in the following limited situations:

- where below-standard network access services sought by a particular end-use network user may result in cost savings to the network service provider; or
- where there is a genuine threat of network ‘by-pass’ by a particular network user – either in whole or in part.

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<sup>22</sup>See

[http://www.nt.gov.au/ntt/utilicom/s\\_docs/embedded\\_generation\\_final\\_framework\\_may\\_2002.pdf](http://www.nt.gov.au/ntt/utilicom/s_docs/embedded_generation_final_framework_may_2002.pdf).

### Clause 68

Clause 68 of the Network Access Code sets out revenue and price cap principles which make allowance for the standards of service applying to the network service provider. It states:

*“In setting a revenue or price cap, the regulator must take into account the revenue requirements of the network provider during the relevant financial year or years having regard to –*

*...*

*(b) the service standards applicable to the network provider under this Code and any other standards imposed on the network provider by any regulatory regime administered by the regulator and by agreement with the relevant network users”.*

The Commission interprets this to mean that revenue or price caps (as applicable) must be sufficient to sustain the standards of service requirements laid down in clause 9A unless, by agreement with the relevant network users, a higher standard is imposed by any regulatory regime administered by the Commission. If the latter is the case, the revenue or price caps (as applicable) must be sufficient to sustain the higher standards of service imposed by the regulatory regime administered by the Commission.

### Part 3 – Access Pricing

More generally, the Commission interprets its regulatory oversight of revenue or price caps as requiring it to monitor standards of service or impose service standards. Otherwise, the cost savings associated with price regulation could be due to standards of service being cut rather than by increasing efficiency. A measurement methodology and tracking mechanism for the standards of service being provided is therefore a prerequisite for price regulation being in the network user and consumer interest.

To this end, where the network service provider has not otherwise done so, the Commission considers that it is incumbent upon it:

- to establish benchmarks (or targets) for network standards of service;
- to monitor and enforce the extent to which the network service provider then uses reasonable endeavours to provide network access services of a quality and a standard at least equivalent to the standards of service benchmarks (or targets) established by the Commission; and
- to consider developing mechanisms to sharpen the incentives for the network service provider to meet and exceed the established standards of service benchmarks.

## Electricity Reform Act 2000

### Objects of Act

One of the objects of the *Electricity Reform Act* as stated in section 3 is:

*“...to establish and enforce proper standards of safety, reliability and quality in the electricity supply industry”.*

### Government’s intentions

In October 1999, accompanying the second reading speech for the proposed legislation, the Minister provided an overview of the proposed market and regulatory arrangements:

*“Licence conditions are to include the requirement that, with respect to non-contestable customers, the quality (in terms of frequency and voltage) and reliability (in terms of the frequency and duration of outages) of supply must be maintained at least equal to current/existing standards.*

*Over time, the Utilities Commission is to recommend to the Government where improved service standards for quality and reliability should be delivered by the regulated suppliers in return for the revenue streams they are allowed under the price controls.*

*The Utilities Commission is also to be responsible for monitoring and publishing suppliers' actual performance against service standards sanctioned by the Government and the customer charters devised by the suppliers. Under-performance could attract significant penalties.*

*The Utilities Commission will therefore take administrative responsibility for:*

- in consultation with industry and consumer representatives, codifying minimum standards and conditions of service and supply;*
- monitoring the performance of PAWA in supplying non-contestable customers against standards of service set by the Government; and*
- enforcing penalties for failure to meet licence conditions.”*

### **Section 92**

More specifically, section 92 of the Act deals with the provision of minimum standards of service and safety for non-contestable customers, in which it states:

*“(1) The Utilities Commission must from time to time make provisions imposing minimum standards of service and safety for non-contestable customers.*

*(2) The minimum standards are –*

*(a) to be at least equivalent to the actual levels of service and safety for those customers prevailing during the year before the commencement of this section; and*

*(b) to take into account relevant national benchmarks developed from time to time.*

*(3) If a electricity entity's licence authorises the selling of electricity to non-contestable customers, it is a condition of the licence that the electricity entity monitor and report on the levels of compliance with minimum standards.”*

There are several points that are noteworthy with section 92, when compared with the legislative requirements under the Network Access Code, namely:

- this provision relates explicitly to non-contestable customers (whereas the requirements under the Network Access Code do not explicitly distinguish between classes of customers);
- the services involved are all components of the final service, namely generation, networks and retail (whereas the requirements under the Network Access Code relate only to network access services);
- an explicit reporting obligation is placed on each licensed retailer once minimum standards are set (whereas the reporting obligation is implicit under the Network Access Code);
- the Commission is obliged to set standards of service (in contrast to the Commission not being given a direct standard setting role under the Network Access Code); and
- the minimum standards of service obligations apply to all licensed electricity entities whether government-owned or privately-owned (and not just the network service provider in regulated networks only as in the Network Access Code, which happens to be just Power and Water).

On close inspection, section 92 of the *Electricity Reform Act* requires some interpretation. First, section 92 does not provide any guidance as to a commencement date for the imposition of minimum standards. Instead, it provides that:

*“The Utilities Commission must from time to time make provisions...” [underlining added for emphasis]*

In the Commission’s view, the phrase from ‘time to time’ implies some form of regularity in imposing minimum standards of service, but it does not indicate when the Commission must commence imposing these standards, or how often they are to be reviewed. The Commission has chosen to interpret section 92 as not obliging it to set minimum standards immediately on proclamation of the *Electricity Reform Act*.

Secondly, section 92 provides a basis for exercising the function referred to in section 6(1)(c) of the *Utilities Commission Act*. Specifically, section 92(1) provides that:

*“The Utilities Commission must ... make provisions imposing minimum standards of service...” [underlining added for emphasis]*

There are currently no regulations under the *Utilities Commission Act* which specifically authorise the Commission to make determinations on standards and conditions of service and supply. Apart from section 92 of the *Electricity Reform Act*, the Commission is not authorised to develop and publish determinations, codes, rules or guidelines under either the *Utilities Commission Act* or relevant industry regulation Acts.

The Commission’s view is that the use of the word ‘imposing’ in section 92 of the *Electricity Reform Act* provides it with sufficient authority to make a determination or code or rule or guidelines in relation to standards of service. There is no other way that the Commission could effectively impose such standards on electricity entities. In light of this, the Commission therefore views section 92 as providing it with the relevant authority to make determinations, codes, rules or guidelines as appropriate in relation to standards of service. The Commission does not believe that a regulation under the *Utilities Commission Act* or the *Electricity Reform Act* is necessary in the circumstances.

The Commission does not rule the possibility out, however, that particular features of a standards-of-service framework that it might propose following public consultation (e.g., incentive mechanisms at the retail level) might not require Ministerial action in the form of a supporting pricing order or via the making of enabling Regulations.

Once a function is assigned under a relevant industry regulation Act (such as imposing standards of service), the *Utilities Commission Act* gives the Commission the powers necessary to make determinations (section 20 of that Act), to make codes or rules (section 24), or to issue guidelines (section 7). The Commission’s initial view is that a determination or a code would be stronger than the use of a guideline. A guideline is more likely, by definition, to be a statement or other indication of policy or procedure by which to determine a course of action.

In developing and publishing determinations and codes, the *Utilities Commission Act* obliges the Commission to follow certain procedures, which include:

- before developing a determination or making a code, consulting with the Minister and representative bodies and participants in the industry concerned (sections 22, 24(4)); and
- in the case of determinations, providing a draft determination for comment prior to finalising the determinations.



**APPENDIX****B****DEVELOPMENTS IN OTHER JURISDICTIONS**

While most regulators in Australia broadly agree on the performance measures which make up standards of service, no single set of standard measures has been universally adopted across jurisdictions. Instead it is well understood that information requirements will vary to some degree across jurisdictions, due to the differing:

- cost/benefit pay-offs of network service providers, which in some jurisdictions requires regulators to be less prescriptive in imposing standards of service than in other jurisdictions, ensuring a balance is struck between the cost of compliance and benefits to network users;
- dynamics of a network service provider's customer base (e.g., the proportion of urban and rural network users); and
- monitoring and reporting systems used among network service providers.

There have been a number of studies and research papers undertaken by various regulatory bodies over recent years. The Commission is fortunate in being able to draw on the work of its colleague regulators, and this paper draws heavily on the work that has gone before.

This Appendix outlines the findings of those papers and commends them to industry stakeholders in the Territory for further reading.

**Utility Regulators Forum (URF)**

In recent times, there has been a push among regulators to collect and record information on a consistent basis to enable performance comparisons among electricity entities. The URF (of which the Commission is a member) has agreed that jurisdictional economic regulators would develop a core set of nationally-consistent performance reporting requirements covering:

- service performance of network service providers;
- financial performance of network service providers; and
- service performance of energy retailers.

The URF issued a discussion paper prepared by its Steering Committee on National Regulatory Reporting Requirements ("SCNRRR") entitled *National Regulatory Reporting For Electricity Distribution and Retailing Businesses* (generally referred to as the "SCNRRR paper") in March 2002<sup>23</sup> which set out an agreed national regulatory reporting framework for the three areas above. Reporting is being progressively introduced across Australian jurisdictions commencing from July 2002. Over time, the Commission will be undertaking to align its regulatory reporting, with respect to standards of service, with the nationally-

<sup>23</sup> Download from

<http://www.accc.gov.au/content/item.phtml?itemId=332190&nodeId=file400f5481a69cf&fn=National%20regulatory%20reporting%20for%20electricity%20distribution%20and%20retailing%20businesses.pdf>.

agreed requirements. At the same time the Commission will have regard to the special characteristics of the Territory (its small size by national standards and isolation and distance from other power systems) and the potential compliance costs involved.

### **Australian Competition and Consumer Commission (ACCC)**

The ACCC is the national regulator for the high voltage electricity transmission networks, and for interstate gas transmission pipelines. Its landmark document in this area is its *Draft Statement of Principles for the Regulation of Transmission Revenues*, dated 27 May 1999.<sup>24</sup> The *Statement of Principles* makes it very clear that service standards are a key part of the regulatory compact.

The relevant principles in the *Statement of Regulatory Principles* include:

“• [Transmission network service providers (TNSPs)] must propose a single set of service standards, and proposed benchmarks for each standard, as part of their regulatory review application.

• The Commission will review the TNSP's application and establish a set of service standards with performance benchmarks, and a quality of service monitoring program for each TNSP under its jurisdiction.

• The Commission will include a set of service standards and benchmark levels of performance in its Draft Decision and Final Decision on the TNSP's application.

• Commercially significant sanctions for non-performance of service standards will be published ...

• Commercially significant sanctions will be imposed during a regulatory review for a TNSP that does not, in the Commission's sole opinion, maintain its service to customers at the benchmark level.”

On 12 November 2003, the ACCC published its *Decision - Statement of Principles for the Regulation of Transmission Revenues - Service Standards Guidelines*.<sup>25</sup> This decision addresses clause 6.2.4 of the National Electricity Code, which requires the ACCC to set a revenue cap for the transmission business having regard to the service standards referred to in the Code or imposed by the ACCC. Consistent with the ACCC's jurisdiction relating to the transmission system rather than the distribution system, the nature of the service standards emphasises circuit availability rather than factors such as customer service and frequency of interruption.

Finding little common performance data to exist in Australia and internationally on which to develop industry benchmarks, the ACCC decided to implement an “incremental performance” regime, in which the actual performance outcomes of each Australian TNSP from the last three to five years acts as a guide to set achievable performance targets.

The ACCC's decision measures performance on three key indicators:

- transmission circuit availability (critical, non-critical or peak), comprising between 25% and 50% of the total performance measure;
- average outage duration, comprising between zero and 60% of the total performance measure; and

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<sup>24</sup> Download from

<http://www.accc.gov.au/content/item.phtml?itemId=361789&nodeId=file3f8b8ea48ac9f&fn=draft%20statement%20of%20regulatory%20%20principles.PDF>. Note that the ACCC is currently conducting a review of the *Statement of Principles*. See

<http://www.accc.gov.au/content/index.phtml/itemId/54361/fromItemId/54358>.

<sup>25</sup> Download from

[http://www.accc.gov.au/content/item.phtml?itemId=400536&nodeId=file3fb965c7d1fbb&fn=Guidelines%20\(12%20November%202003\).pdf](http://www.accc.gov.au/content/item.phtml?itemId=400536&nodeId=file3fb965c7d1fbb&fn=Guidelines%20(12%20November%202003).pdf).



- loss of supply event frequency index, comprising between zero and 60% of the total performance measure.

The ACCC flagged its intention to include market related performance indicators (inter-regional constraints and intra-regional constraints) but found these to be too problematic to implement at the current time.

While the ACCC provided standard definitions for these performance measures, it recognised the various TNSPs have been collecting data to measure these indicators in a variety of different ways. It therefore proposed to allow some flexibility in the definitions as applied by the individual TNSPs. This was acceptable as the performance data would be calculated in the same way as the historical data on which the performance targets were established.

The incentive is implemented through an adjustment to the TNSP's Maximum Allowable Revenue (MAR) under the revenue cap. The impact of the incentive mechanism is limited to 1% of MAR. The incentive is implemented with a six to twelve month lag, to allow for actual performance measurement.

Recognising that Australian TNSPs operate at a high level of circuit reliability, the ACCC acknowledged that it may be more difficult to achieve an improvement in reliability than to prevent a similar reduction in reliability. The ACCC therefore discussed the concept of allowing the reward component of the incentive mechanism to accrue at a faster rate than the penalty component; an "asymmetric incentive mechanism". Concluding that such a mechanism may be appropriate in the future should reliability decline, the ACCC decided on a symmetric reliability mechanism at this time.

## **Independent Pricing and Regulatory Tribunal of NSW (IPART)**

IPART published a research paper entitled *The Incorporation of Service Quality in the Regulation of Utility Prices* (Research Paper No. 17, March 2001)<sup>26</sup>. Prepared for IPART by the Allen Consulting Group, this cross-industry paper discussed the key issues associated with including quality of service measures in the regulatory regime. The paper surveyed the experience of other Australian and overseas jurisdictions on this issue and focuses on the particular circumstances in New South Wales.

In January 2002, IPART released a report prepared by NERA on regulating minimum standards of service.<sup>27</sup> This report was prepared in the context of a review of the NSW licensing regime, and discussed the role minimum standards of service may play within the overall regulatory framework. It also described the issues that must be decided in adopting a given set of minimum standards and the associated practical implementation issues, and provided a summary of approaches taken in other regulatory jurisdictions.

In May 2003, IPART published *Providing Incentives For Service Quality In NSW Electricity Distribution: An Issues Paper* (Discussion Paper DP63).<sup>28</sup> This paper focused more on the choice of measures, the nature of performance targets, and the rewards or penalties linking service quality and distribution network service provider (DNSP) revenue using an S factor approach. This paper included a discussion on the data limitations of the NSW distribution businesses and the implications for implementing a quality of service mechanism. Importantly, this paper introduced IPART's view that service quality incentives could best be provided through a combination of an S factor financial incentive, Guaranteed Customer Service Standards (GCSS), and reporting and publication of key reliability data.

That discussion paper fed into IPART's January 2004 *NSW Electricity Distribution Pricing 2004/05 to 2008/09 - Draft Report* and *Draft Determination* on the 2004 electricity

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<sup>26</sup> Download from <http://www.ipart.nsw.gov.au/pdf/RP17.pdf>

<sup>27</sup> Download from <http://www.ipart.nsw.gov.au/pdf/NERArpt3.pdf>

<sup>28</sup> Download from <http://www.ipart.nsw.gov.au/pdf/DP63.pdf>

distribution price review.<sup>29</sup> In those documents, IPART proposed to introduce an S factor financial incentive mechanism into the weighted average price cap, based on reliability performance measured by system wide SAIDI. IPART concluded that:

*“Because SAIFI affects SAIDI, an S-factor that was based on these two measures would implicitly be attaching greater weight to the frequency of interruptions than the duration of interruptions. The Tribunal considers that there is insufficient evidence to conclude that customers are significantly more concerned about the frequency of interruptions compared to the duration of interruptions.”*

In its draft report and draft determination, IPART proposed to classify the S factor measures, and the exclusions to the SAIDI calculations, on the SCNRRR paper definitions. Further, IPART proposed to introduce the S factor via a “paper trial” for the first two years of the regulatory period (i.e., monetary incentives from 2006-07 only), acknowledging network service provider concerns over data accuracy and limited historical measurement. IPART introduced requirements for the network service providers to improve their data gathering and reporting systems, and report annually on progress in data improvement programs.

In the process, IPART engaged a consultancy to measure the marginal cost of service standard improvements based on available information.<sup>30</sup> These measures were the foundation of IPART’s draft decision on the incentive rates, ranging from \$4,000 per MWh of unserved energy for EnergyAustralia to \$8,000 per MWh of unserved energy for Country Energy. Among the consultant’s comments was a view that the risks associated with including an asset in the regulatory asset base provided a stronger incentive than could be provided under the S factor regime.

IPART’s draft decision was that the S factor be symmetric in design, allowing an increase in the average weighted price cap where service quality improves, and a decrease where service quality declines. IPART’s proposal also limited the distribution businesses’ financial exposure to the S factor to 0.5% of revenue.

Stakeholder response to the draft report and draft determination generally supported IPART’s desire to provide incentives to improve service quality. However, in light of stakeholder concerns over the risks of introducing perverse incentives, difficulties associated with annual performance variability, and the difficulty of adjusting for data accuracy improvements, IPART modified its approach in its June 2004 *NSW Electricity Distribution Pricing 2004/05 to 2008/09 - Final Report and Final Determination*<sup>31</sup> to remove the financial incentives associated with the S factor for the 2004-2009 regulatory period.

IPART’s final determination affirmed its view that Guaranteed Customer Service Standards should form part of a package of measures to provide incentives for service quality for network service providers. In April 2004, IPART submitted its *Final Recommendations on Guaranteed Customer Service Standards*,<sup>32</sup> which set out minimum standards for energy utilities in a range of areas, to the relevant State Minister. Key aspects of these draft recommendations included the introduction of two new GCSS for service reliability:

- duration of interruptions - a requirement for network service providers to make a payment to customers for every outage that they experience that lasts for over 12 hours; and
- frequency of interruptions – a requirement for network service providers to make a payment to customers for each outage they experience in a single year over a certain threshold – IPART sought opinion on adopting the same thresholds as apply in Victoria and as proposed in Tasmania (9 for customers on CBD/urban feeders, and 15 for customers on rural feeders).

<sup>29</sup> Download the draft Report from <http://www.ipart.nsw.gov.au/pdf/OP-18.pdf> and the draft Determination from <http://www.ipart.nsw.gov.au/pdf/OP-19.pdf>.

<sup>30</sup> Download from [http://www.ipart.nsw.gov.au/papers/PB\\_Assoc\\_0104.pdf](http://www.ipart.nsw.gov.au/papers/PB_Assoc_0104.pdf).

<sup>31</sup> Download the final Report from <http://www.ipart.nsw.gov.au/pdf/op-23.pdf> and the final Determination from <http://www.ipart.nsw.gov.au/pdf/DET04-2.pdf>.

<sup>32</sup> Download from <http://www.ipart.nsw.gov.au/pdf/Op-22.pdf>

There were three key changes from IPART's draft to final recommendations regarding network reliability GCSS. First, rather than requiring the network service providers to make automatic payments for breaches of the GCSS on network reliability, IPART's final recommendation was that payments made for breach of this standard should be made on application. Secondly, IPART recommended higher thresholds for Country Energy and Australian Inland Energy interruption frequency to 12 (urban) and 20 (rural). Thirdly, IPART also recommended that the Minister should cap the number of payments at four per household per financial year for each GCSS.

In summary, IPART's recommendations were to:

- introduce GCSS for network reliability;
- not introduce GCSS for quality of supply;
- retain current GCSS for telephone services;
- retain current GCSS for timely provision of services and notice of planned interruptions;
- remove GCSS for appointment keeping; and
- remove GCSS for streetlights and replace with a streetlighting code.

IPART's recommendations also included a discussion of quality of service GCSS for gas networks and energy retailers. While the recommendations include GCSS be introduced for timely connection and notice of planned interruptions for gas reticulators, no GCSS were proposed for network reliability, as supply reliability problems in gas reticulation are relatively rare, and instances where customers experience multiple interruptions to supply are rare.

### **Essential Services Commission of Victoria (ESCV)**

In its 2001–2004 electricity determination,<sup>33</sup> ESCV (then the Office of the Regulator-General) adopted a framework incorporating many features adopted by UK energy regulator OFGEM and some US regulators. This determination introduced two financial incentives for service reliability:

- the addition of an 'S' term to the CPI-X price controls that will adjust the annual price caps for each network service provider to reflect actual service performance outcomes relative to the targets. The targets cover total minutes off supply, interruption frequency and duration for both planned and unplanned outages, defined separately for each network service provider and for each of the four major feeder network types. To the extent that the network service providers can achieve or exceed the set reliability targets at a lower cost than implied by the expenditure benchmarks, they can keep additional revenue within the regulatory period. If they under-perform the targets, their revenue will be reduced over that period; and
- a requirement to make 'Guaranteed Service Level' payments to network users who experience reliability that is worse than specified performance thresholds.

In April 2004, ESCV released its *Electricity Distribution Price Review 2006 Service Incentive Arrangements* (Consultation Paper No. 2).<sup>34</sup> That discussion paper included some key observations on the operation of the existing regime, including: the differing incentive rates applying across the network service providers; the fact that the rewards for avoiding interruptions are the same for all consumers; the rewards for improving reliability exceed

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<sup>33</sup> Download from <http://www.esc.vic.gov.au/apps/page/user/pdf/detervol1sep00.pdf>. See Appendix D.

<sup>34</sup> Download from [http://www.esc.vic.gov.au/apps/page/user/pdf/EDPR\\_ConsultPaperNo.2\\_Apr04.pdf](http://www.esc.vic.gov.au/apps/page/user/pdf/EDPR_ConsultPaperNo.2_Apr04.pdf).

some estimates of average consumer willingness to pay; and that there is a fixed and variable component to consumer benefit from reducing outages.

Importantly, this discussion paper conducted considerable analysis on the relationship between the level of the S factor and GCSS incentive mechanisms and customer willingness to pay for service level improvements.

The discussion paper is part of a consultation process in which ESCV acknowledges that the possible options for the refinement of the current regime could fall under three broad categories of initiatives:

- those that imply little change to the overall regime, and do not require additional information on consumer willingness to pay;
- those that imply modest changes to the current regime and/or where additional information on consumer willingness to pay is desirable; and
- those that imply substantial changes to the current regime and/or require additional information on consumer willingness to pay.

### Queensland Competition Authority (QCA)

As part of its May 2001 *Final Determination: Regulation of Electricity Distribution*,<sup>35</sup> the QCA expressed its intention to include some form of service quality incentive mechanism into the regulatory framework for the next regulatory period. In particular, network service providers are required to collect and report data against service quality measures and definitions established by the QCA. These measures are contained in the October 2001 *Electricity Distribution: Service Quality Reporting Guidelines*.<sup>36</sup>

In July 2002, the QCA commissioned its *Electricity Service Quality Incentives Scoping Paper*<sup>37</sup> to look at the characteristics of service quality incentive regimes, the most important measures to target, how service quality incentives might interact with other parts of the regulatory regime and the experience of other Australian jurisdictions and international regulators.

In September 2003, the QCA's consultants, Meyrick/PEG, provided their report<sup>38</sup> on developing a service quality incentive mechanism. In releasing the Meyrick/PEG Draft Report for comment, the QCA flagged its concern that a broad service quality incentive scheme with rewards to improve reliability may not be warranted if customers were happy with current reliability levels. Meyrick/PEG recommended that a service quality incentive scheme of the CPI-X+S form be introduced for the two Queensland network service providers to take effect from 1 July 2005. Given a lack of accurate data, they recommended a 'paper trial' scheme for the first three years until the robustness and reliability of the data is established; the first financial rewards or penalties would be expected to take effect for performance in the 2008–09 financial year. Submissions in response to the Meyrick/PEG Draft Report raised a number of concerns. Principal among these were the complexity and uncertainty inherent in any such scheme and the negative delays in valuing real improvements which may result from the paper trial period. In February 2004, the QCA released its *Draft Decision – Service Quality Incentive Scheme for Electricity Distribution Services in Queensland*<sup>39</sup> which outlined a service quality incentive scheme based on a regulatory contract to be agreed as part of (and tied to) the regulatory arrangements to apply to electricity distribution from 1 July 2005. Under the QCA's proposal, the scheme would target specific service quality outcomes to be achieved by the end of the next regulatory

<sup>35</sup> Download from <http://www.qca.org.au/www/getfile.cfm?fid=500&lib=5&LibraryID=5&PageID=43>.

<sup>36</sup> Download from <http://www.qca.org.au/www/getfile.cfm?fid=460&lib=5&LibraryID=5&PageID=43>.

<sup>37</sup> Download from <http://www.qca.org.au/www/getfile.cfm?fid=398&lib=5&LibraryID=5&PageID=43>.

<sup>38</sup> Download from <http://www.qca.org.au/www/getfile.cfm?fid=580&lib=5&LibraryID=5&PageID=43>.

<sup>39</sup> Download from <http://www.qca.org.au/www/getfile.cfm?fid=670&lib=5&LibraryID=5&PageID=43>.

period, rather than requiring annual assessments of service quality and corresponding financial adjustments to be made.

In establishing the capex and opex building blocks for the next regulatory period, the network service providers would be required to submit forecasts associated with:

- (a) maintaining the current service quality level (the QCA comments that it has not been presented with any evidence to suggest that current service quality levels are too high);
- (b) improving service quality aimed at delivering an agreed average level of service (which may be somewhat higher than current service levels); and
- (c) specific additional commitments aimed at improving service quality in specific parts of the network or addressing identified customer requirements and including clearly identified service quality outcomes.

No penalties or rewards would apply with respect to achievement of service quality outcomes under (a). This mirrors the current arrangements where best estimates were used to determine reasonable capex and opex forecasts for the regulatory period with the aim of maintaining existing service quality. These forecasts were then built into the revenue caps for each year without any specific penalties should service quality levels deteriorate. However, under the proposed new arrangements, to the extent that parts (b) and (c) build on attainment of basic service quality levels under (a), there would be a clear incentive created for these basic levels to be achieved.

In April 2004, the QCA released its *Final Decision – Service Quality Incentive Scheme for Electricity Distribution Services in Queensland*,<sup>40</sup> which confirms that it will adopt the approach to service quality incentives outlined in the draft decision. The detail of the scheme will be settled as part of the current review process and be ready to commence at the start of the next regulatory period in July 2005.

## Essential Services Commission of South Australia (ESCOSA)

The regulatory arrangements established for the long-term lease of the SA electricity distribution network assets specified an index of quality of service measures against which performance would be assessed. The index included indicators of the time to restore supply, average minutes off supply and the average number of interruptions per network user. The South Australian electricity distributor, ETSA Utilities, annually reports its performance against these measures to ESCOSA. Variations in performance result in modest financial penalties or rewards.

ESCOSA has published a report on the comparative performance of the SA network service provider against various quality of service and cost measures. ESCOSA also commissioned a consultant to examine the feasibility of setting, or modifying, the “X” factor at the next review based on relative performance against the quality of service and cost performance indicators in the current period.

In July 2002, ESCOSA (then SAIIR) issued its *Developing Service Incentives for the 2005 Electricity Distribution Price Review Discussion Paper*. In February 2002, ESCOSA (then SAIIR) issued its *Service Standards for 2005 to 2010 Discussion Paper*.<sup>41</sup> These discussion papers canvassed the approaches, structures and measurement of a Service Standards Framework (SSF). In April 2003, ESCOSA released its *Electricity Distribution Price Review: Service Standard Framework – Initial Thoughts* paper,<sup>42</sup> setting out a possible framework for regulating and providing incentives for service quality as part of the Electricity Distribution Price Review.

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<sup>40</sup> Download from <http://www.qca.org.au/www/getfile.cfm?fid=705&lib=5&LibraryID=5&PageID=43>.

<sup>41</sup> Download from [http://www.escosa.sa.gov.au/resources/documents/ServiceStandardsFramework\\_Final-020212.pdf](http://www.escosa.sa.gov.au/resources/documents/ServiceStandardsFramework_Final-020212.pdf)

<sup>42</sup> Download from [http://www.escosa.sa.gov.au/resources/documents/030306-R-Final\\_IT\\_SSF.pdf](http://www.escosa.sa.gov.au/resources/documents/030306-R-Final_IT_SSF.pdf)



Following consultation on that paper and extensive discussions with ETSA Utilities, in June 2004 ESCOSA released a *Electricity Distribution Price Review: Service Standard Framework - Working Conclusions* paper<sup>43</sup> which detailed its proposals for a SSF to apply to the South Australian electricity distributor, ETSA Utilities, from 2005 to 2010.

The development of the 2005 SSF has been guided by the outcomes of a consumer survey conducted in 2002 in which most respondents (approximately 85%) claimed they were satisfied with their existing level of distribution service and were not willing to pay for further improvements. ESCOSA has therefore sought to develop a framework that focuses on providing an incentive to improve the level of service to the worst served distribution customers while maintaining the average level of service to all customers.

There are three components that make up the proposed framework:

- average standards;
- service incentive scheme; and
- guaranteed service level scheme.

### ***Average standards***

ESCOSA has established a set of average standards which ETSA Utilities is to be required to use best endeavours to achieve. These average standards have been established to ensure that ETSA Utilities does not focus solely on improving service to the worst served customers at the expense of all other customers.

The reliability standards generally reflect current performance by ETSA Utilities. The standards are based on analysis of reported reliability performance over the 2000-01 to 2002-03 period. To more accurately represent current performance, ESCOSA intends to incorporate 2003-04 performance data into the analysis once this data becomes available. The proposed reliability standards may be altered to reflect this new data.

The proposed reliability standards incorporate reliability performance on the low voltage (LV) distribution network. At present, there is little available data on the performance of the LV network and ETSA Utilities does not include LV interruptions in its reported reliability performance. The proposed reliability standards apply a LV adjustment factor of 3% to the HV-only reliability data, in line with the findings of a previous study conducted by Sinclair Knight Merz on the impact of LV interruptions on overall reliability performance in SA.

### ***Service incentive (SI) scheme***

The proposed SI scheme is to focus on the worst served distribution customers. The development of the scheme has been driven by the results of the 2002 consumer survey which provided an indication of the aspects of distribution service that customers are willing to pay to improve and the amounts they are willing to contribute for such improvements.

The proposed SI scheme contains two measures of distribution performance: the first based on the total duration of interruptions to supply received by the worst served 15% of customers, and the second based on the percentage of telephone calls responded to within 30 seconds.

#### *Total duration of interruptions*

The consumer survey indicated that, in general, customers that experience three or more interruptions per annum are willing to pay for a reduction in the frequency of interruptions experienced, and customers experiencing at least 180 minutes off supply per annum are willing to pay for improvement to the total duration of interruptions experienced. ESCOSA has used this result as the basis for setting the 'threshold' level of service for which the SI scheme should apply. It is intended that the scheme deliver an incentive for ETSA Utilities

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<sup>43</sup> Download from <http://www.escosa.sa.gov.au/resources/documents/040629-D-SSFworkingconclusions.pdf>

to improve reliability service to these worst served customers and to provide an incentive to prevent service levels to other customers from deteriorating to the extent that their service becomes worse than these thresholds.

Due to the lack of customer-specific reliability performance data, ESCOSA has had to develop the SI targets on a feeder level basis. It has decided that those feeders which have experienced a SAIFI of at least three interruptions per annum for the previous two consecutive years or SAIDI of least 180 minutes per annum for the previous two consecutive years should be considered to meet the threshold and would therefore be included in the group of feeders for which SI performance would be measured. On the basis of historical performance, approximately 15% of customers meet this criterion, which produces a result that is consistent with the intent of focussing the scheme on the worst served 15% of customers. ESCOSA proposes to identify feeders based on performance over a two year period in order to focus on those feeders with more systemic poor performance.

The performance of an above threshold feeder is to be measured based on customer minutes off supply, which is calculated as the number of customers affected by an interruption (assumed to be all customers on the feeder) multiplied by the number of minutes off supply per customer (the feeder SAIDI). This measure is considered to provide ETSA Utilities with an incentive to improve both the frequency and duration of interruptions, since this measure is dependent on both factors.

This measure is to apply on a statewide basis. It is not intended that separate regional targets be established.

ESCOSA is proposing to implement a scheme with deadbands. The scheme is to reward improvements to the same extent as it penalises deterioration in performance. The initial baseline targets will be calculated based on the historical performance of the above threshold feeders. There will be three bands either side of the baseline target.

Baseline targets are to change from year to year to reflect previous years' performance. Measurement of performance against the baseline targets will be calculated at the end of each calendar year, looking back at performance over the previous two calendar years. ESCOSA is proposing a two year period for measuring performance to reduce the impact of one-off events (e.g., severe storms), which can lead to significant variations in performance from year to year. Revenue adjustments to incorporate SI performance in any one year will take effect from 1 July in the following year.

Reliability performance will exclude interruptions caused by generation and transmission failures as well as disconnections resulting from emergency situations (e.g., due to a bushfire), but will include all other interruptions.

*Percent of telephone calls responded to within 30 seconds*

ESCOSA intends to include a measure of call centre performance in the SI scheme since consumers value this aspect of service highly, based on results from the consumer survey. The proposed measure of performance will be the same as a proposed average standard, namely the percent of calls responded to within 30 seconds.

The initial baseline target for this measure will be 85%, which is consistent with the proposed average standard. Similar to the reliability measure, there will be three bands either side of the baseline target with each bandwidth set at one percentage point. Improvements will be rewarded at the same rate as deterioration in service

Performance is to be measured on a calendar year basis, and will not exclude days of extremely high call volumes (e.g., due to a major outage event) as ESCOSA believes that it is after an outage event that consumers most value this service.

*Financial incentives*

ESCOSA proposes to cap the annual maximum reward or penalty under the scheme attributable to performance in any one year to approximately \$2.1 million. This annual cap

has been developed on the basis that ESCOSA wishes to limit the maximum financial incentive under the scheme to around +/-2% of ETSA Utilities' annual distribution revenue.

Of the \$2.1 million annual maximum reward or penalty, approximately \$0.3 million will apply to the call centre measure, and \$1.8 million will apply to the customer minutes measure. These amounts have been calculated by reference to the customer willingness to pay outcomes.

### ***Guaranteed service level (GSL) scheme***

Similar to a scheme already applying in SA under the state's Electricity Distribution Code, ESCOSA intends to require ETSA Utilities to make payments to customers that receive service levels below a predetermined threshold. ESCOSA is proposing to expand the current GSL scheme as it acknowledges that some of the worst served customers are unlikely to receive future service improvements due to the high costs of improving their supply.

ESCOSA proposes that customers be entitled to payments from ETSA Utilities if they experience:

- more than eight interruptions in any one financial year; and/or
- an interruption longer than nine hours in duration in any one financial year.

It is proposed that customers receive a payment of \$80 if their service levels exceed either of these thresholds. In addition, customers that experience service levels worse than these threshold amounts may be entitled to a higher payment.

Under the scheme, a customer experiencing an interruption more than nine hours in duration would be entitled to a payment of \$80, with the payment increasing by \$40 for each additional three hours off supply, up to a maximum of \$160. Similarly, customers experiencing more than eight interruptions per annum would receive an \$80 payment, with the payment increasing by \$40 for each additional four interruptions received per annum, up to a maximum of \$160. There is no limit to the number of payments for the 'duration off supply' GSL in any one year (a customer that experiences five interruptions each lasting 10 hours would be entitled to five payments totalling \$400).

ESCOSA also intends to retain the GSL relating to the timeliness of new connections, where ETSA Utilities is required to connect a new supply address within six business days after the customer meets the necessary preconditions or pay the customer \$50 for each day they are late, up to a maximum of \$250.

A GSL relating to the timeliness of appointments is also proposed to be retained. Under this GSL if ETSA Utilities is more than 15 minutes late for an appointment with a customer, the customer is entitled to a payment of \$20.

## **Office of the Tasmanian Energy Regulator (OTTER)**

In September 2003, OTTER released its *Investigation of Prices for Electricity Distribution Services and Retail Tariffs on Mainland Tasmania: Final Report and Proposed Maximum Prices*,<sup>44</sup> followed in November 2003 by its *Investigation Into Electricity Supply Industry Pricing Policies for Declared Electrical Services: Pricing Determination*.<sup>45</sup>

This report and determination included a financial incentive mechanism in the revenue cap formula for SAIDI and for SAIFI. The incentive rate was set at \$26,000 (real) for each minute

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<sup>44</sup> Download from

[http://www.energyregulator.tas.gov.au/domino/otter.nsf/LookupFiles/R\\_ElectPriceInvest\\_FinalReport.pdf/\\$file/R\\_ElectPriceInvest\\_FinalReport.pdf](http://www.energyregulator.tas.gov.au/domino/otter.nsf/LookupFiles/R_ElectPriceInvest_FinalReport.pdf/$file/R_ElectPriceInvest_FinalReport.pdf).

<sup>45</sup> Download from

[http://www.energyregulator.tas.gov.au/domino/otter.nsf/LookupFiles/R\\_FinalDetermination2003\\_.pdf/\\$file/R\\_FinalDetermination2003\\_.pdf](http://www.energyregulator.tas.gov.au/domino/otter.nsf/LookupFiles/R_FinalDetermination2003_.pdf/$file/R_FinalDetermination2003_.pdf).



change in SAIDI, or 0.01 change in SAIFI, relative to an improving target measure. In both cases, the incentive is limited to a total of plus or minus \$800,000 in any year.

The measures of SAIDI and SAIFI are calculated excluding “Major Event Days” – those days where the contribution to SAIDI from that day exceeds 6.06 minutes. This exclusion threshold contrasts to the SCNRRR paper threshold, whereby events impacting SAIDI by more than three minutes are considered to be excluded events.

The Tasmanian regime also features a GCSS component, requiring payments of \$80 to be made automatically to all customers experiencing an outage exceeding 12 hours’ duration, or for more than 15 rural or 9 urban interruptions per year.

For customer service measures such as customer charter and fault centre performance, no financial incentives are imposed. Rather, performance is to be measured and publicly reported. The same approach applies to the SAIDI and SAIFI measures relating to the worst performing feeders in the State, and to momentary outages (MAIFI) for urban and rural customers.

OTTER has established a Reliability and Network Planning Panel under the Tasmanian Electricity Code. One of the functions of the Panel is to “monitor, review and report on the performance of the industry in terms of reliability of the power system”. The Panel is required to carry out this function at least once a year.

The Panel’s 2002-03 Report<sup>46</sup> discussed the reliability and security of the power system for the financial year 2002-2003 and commented on the outlook for power system reliability in the medium term (the next two years). Throughout the report, previous year’s figures were given for comparison.

Combining the findings of recent reports addressing many facets of the industry that impact on the reliability of the power system, the 2002-03 review endeavoured to undertake a holistic analysis of the factors that have contributed to and are likely to contribute to the reliability of the power system. Accordingly, the Panel report discusses issues relating to generation, transmission and distribution, and a number of specific matters affecting system security.

In conducting its 2002-03 review, the Panel produced an Issues Paper<sup>47</sup> with the intention of identifying the critical factors that affect the reliability of the Tasmanian power system, and providing an opportunity for Code Participants and interested parties to comment on those issues.

## **ACT Independent Competition and Regulatory Commission (ICRC)**

In July 2003, the ICRC released its *Issues Paper - Investigation into Prices for Electricity Services in the ACT*.<sup>48</sup> This paper outlined some of the issues in service quality incentives in general terms and sought comment from stakeholders. This was followed in November 2003 by ICRC’s *Draft Decision – Investigation into Prices for Electricity Distribution Services in the ACT*<sup>49</sup> and the related *Final Decision* in March 2004.<sup>50</sup>

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<sup>46</sup> Download from

[http://www.energyregulator.tas.gov.au/domino/otter.nsf/LookupFiles/R\\_2003\\_Reliability\\_Review\\_Report\\_Final\\_Jan\\_04.pdf/\\$file/R\\_2003\\_Reliability\\_Review\\_Report\\_Final\\_Jan\\_04.pdf](http://www.energyregulator.tas.gov.au/domino/otter.nsf/LookupFiles/R_2003_Reliability_Review_Report_Final_Jan_04.pdf/$file/R_2003_Reliability_Review_Report_Final_Jan_04.pdf).

<sup>47</sup> Download from

[http://www.energyregulator.tas.gov.au/domino/otter.nsf/LookupFiles/R\\_Reliability\\_Review\\_2003\\_Issues%20Paper\\_ver3.1.pdf/\\$file/R\\_Reliability\\_Review\\_2003\\_Issues%20Paper\\_ver3.1.pdf](http://www.energyregulator.tas.gov.au/domino/otter.nsf/LookupFiles/R_Reliability_Review_2003_Issues%20Paper_ver3.1.pdf/$file/R_Reliability_Review_2003_Issues%20Paper_ver3.1.pdf).

<sup>48</sup> Download from

<http://www.icrc.act.gov.au/ICRCPDFFiles/issuespaperinvestigationintoelectricitypricesintheactjuly2003.pdf>.

<sup>49</sup> Download from <http://www.icrc.act.gov.au/ICRCPDFFiles/draftdecisionelecprices7nov03.pdf>.

<sup>50</sup> Download from <http://www.icrc.act.gov.au/ICRCPDFFiles/finalrepelecdistnnetpricemar04.pdf>.

These decisions did not include any incentive mechanisms for improving service standards. As stated by the ICRC:

*“The 2003 draft decision considered service standards which must be met by ActewAGL under the code, the Utilities Act 2000 (the Utilities Act), and its licence. In assessing the efficient costs of providing electricity distribution services the commission has noted that ActewAGL currently meets or exceeds all of its requirements. The commission considered that the revenue settings contained in the 2003 draft decision were adequate to ensure that ActewAGL would be able to continue to meet all of its current service level obligations. Furthermore, the commission expected that the revenue settings would be sufficient for ActewAGL to continue to exceed these minimum service standards over the regulatory period.”*